Pyloroplasty for Gastric Drainage with Vagotomy

FRANKLIN B. WILKINS, M.D., *Whittier*

• *Heineke-Mikulicz pyloroplasty for gastric drainage in connection with vagotomy was carried out in 50 cases.*

Postoperatively a nasogastric tube with suction was used for 72 hours. The diet then was increased very slowly from liquid to bland, over a period of several weeks. If symptoms suggestive of retention developed, the oral intake was sharply decreased and if no relief was noted the tube was reinserted for 24 to 48 hours.

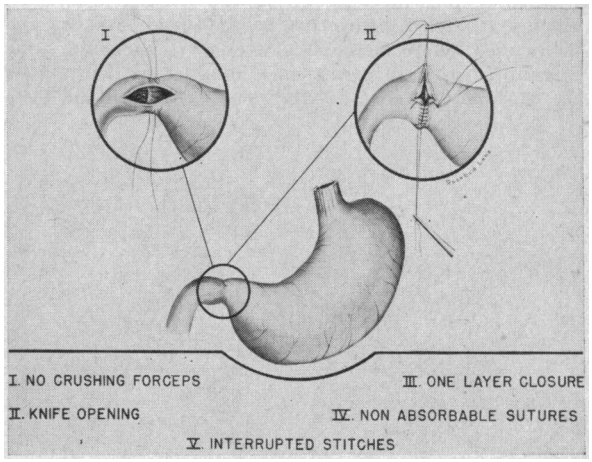
Of the 50 patients, 46 had no retention symptoms after operation. Of the four who had, one required gastroenterostomy but was later found to have carcinoma of the pancreas with ulceration into the duodenum. The remaining three responded to conservative measures.

IT IS WELL KNOWN that vagotomy alone without a gastroenterostomy or pyloroplasty has resulted too frequently in prolonged gastric retention. Often an additional surgical procedure is necessary to establish gastric drainage.

Gastroenterostomy provides excellent drainage but it has some definite drawbacks. In 1905 Cannon and Blake[1] weighed pyloroplasty against gastroenterostomy for pyloric obstruction and concluded that pyloroplasty was preferable for the following reasons: (1) Food is pressed out of the stomach normally by peristalsis; (2) no circulation of food is possible after it leaves the stomach (a vicious circle is not possible); (3) no kinks and sharp turns in the bowel are created; (4) there is no fixation of a free loop of intestine; (5) foods are mixed in a normal manner with the digestive fluids poured into the duodenum. These same factors apply today, and to them can be added these advantages of pyloroplasty or disadvantages of gastroenterostomy: (1) Pyloroplasty permits direct examination of the ulcer crater in the duodenum. (2) Gastritis frequently occurs at the site of the gastroenterostomy. (3) With gastroenterostomy, too rapid "dumping" may occur. (4) If vagotomy is not complete a jejunal ulcer may form at the point of anastomosis. (5) Gastroenterostomy makes gastrectomy more difficult if resection becomes necessary later. (6) Sometimes after gastroenterostomy a large, boggy, dilated, thick-walled loop of jejunum forms just distal to the site of anastomosis. (7) Pyloroplasty requires less operating time than gastroenterostomy. (8) A rare complication following gastroenterostomy is herniation of the jejunum into the stomach through the stoma.

Probably most surgeons would agree that if pyloroplasty would suffice as a drainage procedure with vagotomy, it would be preferable to a gastroenterostomy, especially in younger patients. The question is, does pyloroplasty really give satisfactory drainage? In an attempt to answer this question, 50 cases in which pyloroplasty was done in connection with vagotomy were analyzed. Nine of the patients were between 20 and 30 years of age, 17 in the fourth decade of life, six in the fifth, 12 in the sixth, five in the seventh and one in the eighth. The primary reasons for operation and the number of operations done for each reason were as follows: Intractable pain not relieved by medical treatment, 18; hemorrhage, 16; pyloric obstruction, 10; multiple perforations, 4; diagnosis of a prepyloric ulcer preoperatively (which proved at operation to be duodenal), 2. Thus it is possible to perform pyloroplasty in any case of duodenal ulcer for which surgical treatment is necessary or desirable. (If at operation the pylorus is found to contain so much scar that it is not suitable for pyloroplasty, posterior gastroenterostomy low in the stomach can be done.) During the same period in which vagotomy-pyloroplasty was done in the 50 cases reviewed, vagotomy-gastroenterostomy was done in seven cases. At present the ratio is only about two or three to 50.

The author follows the Heineke-Mikulicz principle, described in 1888, for pyloroplasty. Features of



From the Department of Surgery, University of California at Los Angeles School of Medicine, and the Surgical Service, Veterans Administration Hospital, Long Beach.

the author's technique are shown in the accompanying illustration.

POSTOPERATIVE CARE

The patient is ambulated either the day of operation or on the first postoperative day. Nasogastric suction is used routinely for three full days after operation, the patient being maintained by intravenous feedings. After removal of the tube, the patient is permitted to have clear liquids in small quantities for two days and then a full liquid diet. At the end of the first postoperative week small quantities of soft foods are permitted if the patient has had no difficulty or feeling of fullness with the liquid diet. A soft diet is continued after the patient is discharged from the hospital and at the end of a month after operation a wider selection of bland foods is permitted.

If at any time a feeling of fullness or epigastric distress develops, the quantity of intake is reduced. It is important that the patient not overload the stomach; small, frequent feedings are in order for several weeks after operation.

POSTOPERATIVE BARIUM STUDIES

Gastrointestinal x-ray studies after a barium meal were made in all cases approximately one week and one month postoperatively. In many instances a third gastrointestinal series was made in the fourth to sixth postoperative month. Barium leaves the stomach more slowly after pyloroplasty than after gastroenterostomy. This is particularly true in the early weeks after operation. This slowing of emptying time is usually asymptomatic and in most cases returns to normal within four to six months.

RESULTS

Four of the 50 patients in the series had symptoms of retention postoperatively after removal of the nasogastric tube.

CASE 1. A man 24 years of age had vagotomy-pyloroplasty because of three previous perforations of a duodenal ulcer. Postoperatively the patient had headache and backache, and he vomited before meals. One week after operation, x-ray revealed 50 per cent gastric retention after six hours. After the tenth postoperative day the vomiting stopped and there were no further symptoms of retention. Six months postoperatively x-ray study revealed 15 per cent retention after two hours and the stomach was empty in four hours.

CASE 2. A 27-year-old man was operated upon because of obstruction in the second part of the duodenum. Upon duodenotomy a large ulcer adjacent to the ampulla of Vater was observed. It was also noted at operation that the head of the pancreas was very firm. Vagotomy-pyloroplasty was performed in the hope that healing of the ulcer would eliminate the obstruction in the duodenum at the site of the ulcer. Postoperatively the patient continued to have gastric retention owing to obstruction in the duodenum. Gastroenterostomy was carried out during the fifth week after the first operation. The pylorus was observed to be patent. The obstruction was still at the ulcer site. The patient died several months later and at autopsy a pancreatic carcinoma with ulceration extending into the second part of the duodenum was observed. Because of the location of the ulcer and obstruction beyond the limits of pyloroplasty, gastroenterostomy would have been preferable in this case at the time of the vagotomy even though the diagnosis of peptic ulcer had been correct.

CASE 3. The patient, a man 26 years of age, had symptoms of retention on the fifth postoperative day. The nasogastric tube was reinserted and 2,000 cc. of fluid was removed. The tube was left in for an additional four-day period. When discharged on the 14th postoperative day the patient was eating soft foods and had no symptoms of retention. X-ray studies were made one month postoperatively and the gastric emptying time was normal. There was only a trace of barium in the stomach on the second, fourth and sixth hour films.

CASE 4. The patient was a man 46 years of age. The nasogastric tube was removed on the second postoperative day (one day early). The patient had a feeling of fullness after eating on the fourth postoperative day and it was determined that the oral intake had been increased much too rapidly. Reinsertion of the tube was not necessary. In roentgen studies one week after operation, 50 per cent retention at the end of two hours and 30 per cent retention after six hours was noted. One month postoperatively there was 50 per cent retention in two hours and 10 per cent retention in six hours. The patient had no symptoms of retention, however, after the ninth postoperative day, when he left the hospital.

There were no symptoms of retention in the remaining 46 patients after removal of the nasogastric tube on the third day after operation.

337 North Greenleaf Avenue, Whittier.

REFERENCE

1. Cannon, Walter B., and Blake, John B.: Gastro-enterostomy and pyloroplasty, Ann. of Surg., 41:686, 1905.